Diabetes-Related Renal Disease

Diabetes is the leading cause of renal disease. Nationally, diabetic end-stage renal disease (ESRD) accounts for at least 35% of all new cases (1). The percentage is even higher in Utah. Of the 359 new cases of end-stage renal disease diagnosed in Utah in 2003, over half (51.2%) were attributable to diabetes (2).

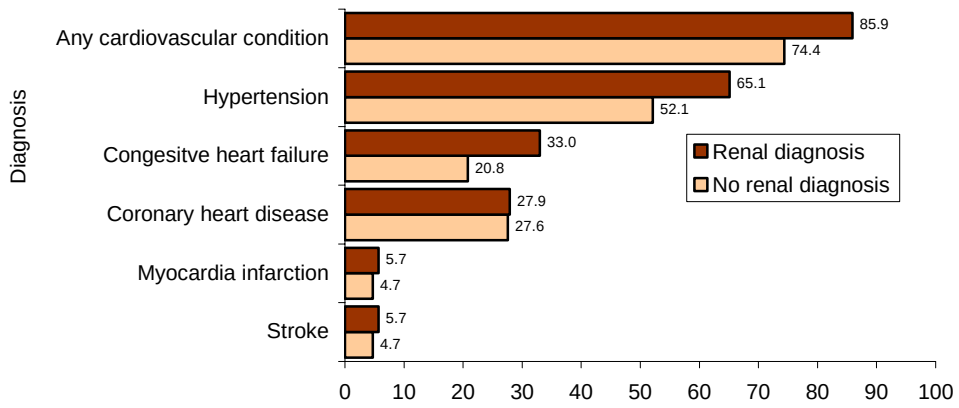
ESRD is linked to a higher risk of mortality than that seen in the general population, independent of age, race, sex, and comorbid conditions (3). The increased mortality risk from renal disease, in fact, rivals that for advanced colon cancer or breast cancer (4).

Renal disease is well recognized for the tremendous burden it places on health system resources. Nationally, among people with diabetes, renal disease accounts for 20 percent of nursing home stays and 12 percent of home health care visits (5). Management of renal disease for people with diabetes often requires dialysis, and ultimately, kidney transplants. In 2003 in Utah, 47.9 percent of all dialysis patients (485 Utahns) had diabetes, as did 32.4% of all renal transplant recipients (242 Utahns) (6).

Renal disease is a major reason for hospitalization among people with diabetes, and it appears to be associated with other diabetes complications, particularly cardiovascular complications. In 2002, 8.7 percent (1,763 discharges) of all diabetes-related hospital discharges in Utah included some mention of renal disease (7). The percentages of diabetes in-patient discharges listing any and specific cardiovascular complications, for those with and without co-morbid renal disease, are shown in Figure 1. As may be seen, among these diabetes in-patient discharges, those listing renal disease were more likely to list a cardiovascular complication than were discharges without a mention of renal disease (85.8% vs. 74.4%). Hypertension, the second leading cause of renal failure, was the most commonly reported co-morbid cardiovascular condition for discharges with and without a renal diagnosis. Nevertheless, the prevalence of hypertension among diabetes in-patient discharges with a comorbid renal diagnosis exceeded that where a renal diagnosis was not listed (65.1% vs. 52.1%). Most striking, the percentage of diabetes in-patient discharges listing congestive heart failure was over one and one-half times that where renal disease was not mentioned as a diagnosis (33.0% vs. 20.8%).

The strong link between cardiovascular disease and renal failure is not surprising. Among all renal patients in the U.S. who undergo dialysis treatment, 70 percent have left ventricular hypertrophy and 40 percent have congestive heart failure.[4] Therefore, early detection and treatment of diabetic renal disease, especially through the use of blood-pressure lowering drugs (e.g., ACE inhibitors and angiotensin receptor blockers) can prevent decline in kidney function by 30 to 70 percent (8).

Figure 1. Percentage of Diabetes InPatient Discharges
Listing Any and Specific Cardiovascular Comorbid Diagnoses
by Whether or Not a Renal Diagnosis Was Listed



Source: Utah In-Patient Hospital Discharges, Office of Health Care Statistics, Utah Department of Health ,

For the names and address of dialysis centers throughout the state, call the Utah Diabetes Prevention and Control Program, (801) 538-6141.

REFEREENCES

[1]Nelson RG Knowle WC Pettit DJ. Bennett PH Kidney Disease in Diabetes: In *Diabetes in America* (2nd ed.). 1995. National Institutes of Diabetes and Digestive and Kidney Diseases, National Institutes of Health publication 95-1468. Pp. 349-400.

[2]ESRD Network 15, Newly Diagnosed Chronic ESRD Patients, Table 1, Preliminary Data 2003

[3]Sanford T. Reikes, MD Trends in end-stage renal disease: Epidemiology, morbidity, and mortality. *Postgraduate Medicine* 2000: 108 (1) [On-line]

[4]Eknoyan G, Levey AS, Levin NW, Keane WF. National epidemic of chronic kidney disease: what we know and what we can do. *Postgraduate Medicine* 2001:110(3) [On-line]

[5]American Diabetes Association. Economic Costs of Diabetes in the U.S. in 2002. Diabetes Care 26: 917-932 (Table 6)

[6]ESRD Network 15, Dialysis Prevalence Table 2 and Renal Transplant Recipients Table 6, Preliminary Data 2003

[7]Utah In-patient Hospital Discharge Database 2002, Office of Health Care Statistics, Utah Department of Health, Salt Lake City, UT

[8] Centers for Disease Control and Prevention. National diabetes fact sheet: general information and national estimates on diabetes in the United States, 2003. Rev ed. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2004. Accessed through the World Wide Web 9/3/04